

CONFIDENTIAL REPORT

PROPOSED UNION PASSENGER

TERMINAL IN NEW YORK

* * *

APRIL 15, 1935

A B C

F O R E W O R D

PROPOSED UNION PASSENGER TERMINALS

NEW YORK

A proposal for the construction of New Union Passenger Terminals in New York, is herewith submitted for the consideration of the Presidents and Boards of Directors of the several New Jersey Railroads, that are at the present time without such facilities.

Prompting the preparation of this Report is:

The great volume of combined passenger traffic - present and potential - of the Seven New Jersey Railroads that would use the new Terminals, - and which is twice the volume of traffic (1930) of the Pennsylvania Railroad, which owns the only standard Railroad connections between New York and New Jersey.

The great convenience and savings in time by the passengers of the New Jersey Railroads,

A N D

The Self-Liquidation feature of the entire project, within a reasonable period.

NEW JERSEY CONNECTIONS

Preliminary Estimates of Costs of construction of the New Jersey connections between the South Tunnel Portal and the Erie R.R. tracks near Hudson Boulevard in Jersey City for the Joint and common use of all participating Railroads, are also submitted. (Page 51).

Estimates vary according to the type of construction, i.e., extent of Tunnel or open cut work, and the number of Tracks required.

Interest charges may not exceed 1 Cent per passenger.

A feasible location is suggested, offering a direct line, easy grades, low cost of land, the shortest subaqueous construction, and the avoidance of conflict with the extensive Real Estate holdings in Jersey City of the Railroads - (P. R.R. and L.V. R.R.), that will not use the proposed Tunnels.

The engineering and construction work of all connections (outside of the Tunnel Portals) should be referred to the Engineering Departments of the interested Railroads.

PUBLIC INTEREST

In considering the advantages of the Proposed Terminal, Public Interest is paramount. In the saving of Time, general convenience and the development of the communities served, it means much more to the many millions of dependant passengers annually than any increased revenues to the Railroads.

The benefits to the tenant Railroads may consist largely in a substantial increase in passenger traffic. The tenant Railroads may perform this added service at Cost.

The Proposed Terminal is not set up as a competitive project, but is primarily to provide improved facilities for the population of the areas served by the interested Railroads.

Of the total number of New York Passengers carried by the New Jersey Railroads in 1930, two-thirds (67%) - 79,500,000 were dependent on and carried by the Railroads without Terminals in New York City.

The financial structure of this Proposal is predicated upon the fact that the Cost of all Passenger facilities ultimately falls upon the travelling Public. Therefore, it is in the Public Interest to obtain the Lowest Possible Cost Per Passenger in order that these Public Benefits may be enjoyed at no appreciable increase in present fares.

This desirable feature is made possible by the availability of the P.W.A. system of Loans & Grants. It is therefore considered to be of utmost Public Interest that a Maximum Grant and the Lowest Possible Rate of Interest on the Loan be secured.

Under the present favorable low-cost financing made possible by the Administration it is believed possible to create these tremendously improved facilities without material increase in Cost either to the Railroads or to the Travelling Public.

Immediate and future benefits accruing from the Construction of the Proposed New York Union Terminal - other than Transportation Improvement - are not treated completely in this Report. However, separate reports have been prepared indicating the vast employment made possible by the Terminal Project, the unprecedented slum clearance program which it involves, and future construction over a large area which will develop as a result of the completion of this Project.

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PROPOSED UNION PASSENGER TERMINAL IN NEW YORK

The Plan provides for the construction of:

Adequate Railway Tunnel connections under the Hudson River between Manhattan and the several New Jersey Railroads.

New Union Passenger Terminal facilities in Mid-town New York.

New Passenger Station facilities in Lower Manhattan.

A N D

New Passenger Station facilities in Jersey City.

For the Joint and Common use of the following

Railroads:

Baltimore & Ohio
Central of New Jersey
Philadelphia & Reading
New York Central

Erie
Delaware, Lackawanna & Western
New York, Ontario & Western
West Shore

All passenger trains may use the new Terminal and
Passengers would save one-half hour or more daily.

The value and importance of the proposed Terminal as a great convenience to the traveling public, the City of New York, and the Railroads may be readily understood from the fact that the volume of trunk line railway passenger traffic in and out of New York City amounts to more than 40% of the entire total of the United States.

SUBURBAN COMMUNITY INTEREST

"The various suburban communities are fully alive to the need of new terminals which will enable the railroads to distribute their passengers to the main points in the business districts. Only those passengers who come to the Grand Central and Pennsylvania Stations, and whose places of business are within walking distance of those terminals, can reach their destination without transferring to some other system of transportation." (R.S. IV - 1928)

Complete electrification of the Terminal and Approaches is essential.

"The nuisance attendant with steam operation, particularly on the New Jersey lines which pass through the tunnels under Bergen Hill, has in many cases held back suburban residential development in the area served by such railroads." (R.S. IV - 1928)

The residents of nearby New Jersey, hundreds of thousands of whom are under the necessity of commuting to Manhattan, excepting in the areas served by the Pennsylvania Railroad, have daily suffered the loss of an hour or more in traveling from and to their homes, a distance of only a few miles, depending on the same means of transportation in use twenty-five (25) and even fifty (50) years ago.

SUBURBAN COMMUNITY INTEREST (Cont'd)

In the commuting area in many cases from the Mid-town district of Manhattan, for example,--to Orange and Montclair, only about twelve (12) miles distant, the time required by present means of transportation, including time for connections, is nearly one hour.

At least two of the carriers have made commendable efforts to improve their service and shorten their schedules in the interest of their patrons and to meet the swiftly growing competition of the bus and automobile.

The Lackawanna has electrified nearly seventy (70) miles of suburban trackage.

The Baltimore & Ohio has provided connecting motor coach service between Jersey City and the Mid-town section of Manhattan for passengers using its fast express trains. This motor coach service, however, requires about forty-five (45) to fifty (50) minutes and is an unsatisfactory and expensive substitute, both for the railroad and the passengers, for the superior convenience of a well located Manhattan Passenger Terminal.

Preliminary estimates of the costs and plans showing the Terminal lay-out and approaches, together with the advantages are herewith submitted.

PASSENGER TRAFFIC IN THE UNITED STATES

In the year 1920 the number of railway passengers carried in the United States totaled 1,270,000,000

Since 1920 there has been an annual decrease, and in 1929 the total was reduced to 786,400,000

IN NEW YORK CITY

In the same ten-year period passenger traffic on the trunk line railroads in and out of New York City showed an annual increase from a total in 1920 of 223,180,000 to a total in 1929 of 273,460,000 an increase of 50,280,000 or more than 22%.

The year 1930 showed a decrease of 7,600,000 from 1929, or about 2 $\frac{1}{2}$ %.

In 1929 the total number of railroad passengers entering and leaving New York City daily, totaled more than one-third (35%) of the entire number of railway passengers carried in the United States, and in 1932 it amounted to 43% of the total. A large share of this total is carried by the railroads which will use the new Terminal.

In the depression years beginning in 1930, total passenger traffic showed a decline as follows:

<u>YEAR</u>	<u>UNITED STATES</u>	<u>NEW YORK CITY</u>
1930	708,000,000	265,808,000
1931	600,000,000	245,000,000
1932	480,000,000	210,900,000
1933	433,000,000	187,000,000

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ANNUAL VOLUME OF PASSENGERS

On the basis of 1928 figures, the New Jersey suburban traffic, to and from New York, amounted to . . . 207,000,000 passengers annually, or about . . . 30,000,000 more than the combined totals of the Long Island and Westchester traffic.

This represents an increase in the New Jersey traffic since 1923 of only . . . 10,000,000 annually, as compared to increases in Westchester traffic of . . . 14,500,000 and in the Long Island traffic in the same five-year period of . . . 26,000,000

* DAILY VOLUME OF PASSENGERS MOVING TOWARD NEW YORK CITY

<u>Sector</u>	<u>1926</u>	<u>1928</u>	<u>Increase 1926 - 1928</u>
New Jersey	316,100	318,100	2,000
Westchester	86,300	95,400	9,100
Long Island	<u>155,000</u>	<u>167,000</u>	<u>11,500</u>
Totals	557,400	580,500	22,600

* As all of these figures represent one-way traffic, the totals for two-way traffic would be double the number above stated.

TREND OF PASSENGER TRAFFIC

A traffic count taken by the North Jersey Transit Commission, Sept. 24, 1924, of all New Jersey passengers (except those in motor vehicles) entering Manhattan, totaled 286,393.

Destination and Distribution:

South of 14th Street	49.7%
14th St. to 59th Street	35.6%

(N.J.T.C. Report 1927) (R.S. N.Y. Vol. IV - 59)

The increasing trend of traffic Northward toward Midtown New York may be shown by the destination of passengers of the Long Island Railroad:

<u>YEAR</u>	<u>FLATBUSH STATION</u>	<u>PENNSYLVANIA STATION</u>
1911	10,395,000 (55.5%)	8,396,000 (45.5%)
1924	27,212,000 (44%)	34,806,000 (56%)
1930	31,880,000 (37%)	54,203,000 (63%)

As indicated in the above totals, passenger traffic in the Flatbush Station, for lower Manhattan, increased in thirteen years 16,817,000 or 161%

In the same period traffic in the Pennsylvania Station (Midtown Section) increased 26,410,000 or 314%

TREND OF PASSENGER TRAFFIC - Cont'd

For the six-year period, 1925 to 1930 inclusive,
the increase at Flatbush Station was 4,668,000 or 17%

In the same period the increase at the
Pennsylvania Station was 19,397,000 or 55%

At the same rate of increase, the New Jersey traffic
in 1930 would show a destination south of 14th Street of 42.7%
(Reduced from 49.7%)

And between 14th Street and 59th Street 42.6%
(An increase from 35.6%)

Traffic to destination north of 59th Street and
to Long Island 14.7%

The increased trend Northward may be actually less
since the large areas served by the New Jersey Railroads,
(except the Pennsylvania) have been without rapid transit
and modern transportation facilities, which favor other
sections of the Metropolitan District, with direct access
to the Midtown section of Manhattan.

The selection of home locations in the Metropolitan
District is largely determined and dependent upon: first,
the convenience, time and cost of transportation to and
from place of business or employment: second, upon the ac-
cessibility to amusement and shopping facilities.

SERVICE TO THE CENTRAL DISTRICT NEW YORK

The Central or Midtown District, with its recent but very rapid development, extending over a wide area, as far North as Central Park (59th Street), with 42nd Street as its probable axis, is about three miles from the highly developed and concentrated, but small area, in lower Manhattan.

It is conclusive that both sections cannot be adequately served by the present terminal facilities, or by a single terminal in Manhattan.

The Central District is accessible from New Jersey to the Pennsylvania Railroad only, which, prior to 1910, was in the same situation as the other New Jersey Railroads. The Pennsylvania Railroad Company's decision to carry passengers direct to their New York destination, dividing the traffic, points to one solution of the great problem of the other New Jersey Railroads, which, by joint and concerted action may accomplish that which none can afford to do individually.

The lines of these New Jersey trunk line railroads extend to the Great Lakes and to the Mississippi River. They maintain first-class equipment and service and by acquiring direct access to Manhattan, through the construction of an adequate and convenient Midtown Terminal, they will largely restore their parity with the railroads already having these superior advantages.

SERVICE TO THE CENTRAL DISTRICT NEW YORK - (Cont'd)

Such action at this time incurs no such risk as taken apparently by the Pennsylvania Railroad a generation ago, according to critics of the period.

The Central District at that time (in comparison with the present) was poorly developed, which is attested by the amount of traffic in the Pennsylvania Station, which was:

In 1911	12,037,000
In 1912	14,026,000
In 1920	36,854,000

An increase in nine years of more than 200%.

"Commuter traffic from New Jersey to the Pennsylvania Station in 1920 was largely diverted to the Hudson and Manhattan Railroad." (R.S. IV - 1928)

In 1930 the total reached in the Pennsylvania Station was 65,885,300, or an increase of 447%.

RAPID GROWTH OF THE CENTRAL DISTRICT

As an example of the rapid growth of the Central District, there were seventy-eight (78) theatres and places of assembly in the Times Square and 50th Street areas by March, 1923, with a seating capacity of 95,294

Within a radius of 1000 feet from the center of 42nd Street and Broadway, there were forty-four (44) theatres with a seating capacity of 56,000

Later, in 1925, came Madison Square Garden at 8th Avenue and 49th Street and 50th Street, with a seating capacity of 20,000
The Paramount Theatre at 7th Avenue and 43rd Street . . 4,000
The Roxy Theatre at 7th Avenue and 50th Street 6,200
and more recently the New Theatres in Radio City . . . 3,700
at 6th Avenue and 50th Street, and the Music Hall . . 6,700

The Times Square Station includes the Interborough, B.M.T., and the Queensboro Subways, with a total of thirty-two (32) exits and entrances.

The City's large department stores, with many hundreds of thousands of customers daily, are located principally on Broadway, 34th Street, Fifth Avenue, and 42nd Street, and could be conveniently reached by a self-supporting Shopper's Bus service circulating in the above thoroughfares, to and from the New Terminal at scheduled intervals. The economy, dependability and convenience of such auxiliary service would be well appreciated.

RAPID GROWTH OF THE CENTRAL DISTRICT (Cont'd)

Shoppers availing themselves of their maximum time in the various stores, would be taken direct to their respective trains with their purchases, avoiding the annoyance, congestion, transfers, and delays necessarily incident to the passage between the Central district and the New Jersey terminals, whether by ferry from West 23rd Street or by Hudson and Manhattan Tubes.

In addition to the present terminals, theatres and shopping centers, are the numerous large hotels, clubs and cafes which are largely confined to the Central District. The largest and most recently constructed office buildings in the City, and the largest Insurance Companies are now located in the Central District area.

The Grand Central Terminal was built in 1871 and was re-built and enlarged in 1898-1899, and was at that time criticized as being in excess of any probable future needs. Within six years plans were begun for tearing this station down and building one many times as expensive and elaborate.

The location of the Grand Central Terminal at 42nd Street and the Pennsylvania Station at 33rd Street has greatly stimulated the growth and development of the Central District.

PRESENT PASSENGER TERMINALS
MANHATTAN

GRAND CENTRAL TERMINAL

The Grand Central Terminal at 42nd Street and Park Avenue is used jointly by the New York Central and the New York, New Haven & Hartford Railroads. The upper level is used largely for the express trains, and the lower level for suburban and commuter trains.

There has been a large increase in the number of passengers using this terminal.

<u>The Totals for</u>	<u>1929</u>	<u>and</u>	<u>1930 follow:</u>
New York Central	32,060,500		31,810,000
New York, New Haven & Hartford	<u>17,736,500</u>		<u>16,878,000</u>
T o t a l	49,797,000		48,688,000

Showing a decrease in 1930 total from 1929 of
about 2% or 1,109,000

This great Terminal with its large daily volume of passengers has been the magnet that has attracted an unsurpassed development, commercial and architectural, in the Terminal area, a location that only a few years ago was considered undesirable and of little value.

PENNSYLVANIA STATION:

The Pennsylvania Station at 7th Avenue and 33rd. Street has shown a very rapid development in the volume of traffic.

The use of this Terminal by New Jersey commuters has been largely restricted by the Pennsylvania Railroad, the Hudson & Manhattan Railroad being used to carry this traffic into New York, the capacity of the Pennsylvania being limited to two tracks under the Hudson River and twenty-one (21) passenger tracks in the Terminal.

In 1930 while the Long Island Railroad (owned by the Penna. R.R.) used the Flatbush Avenue Station for more than one-third of its passengers, it also carried in and out of the Pennsylvania Station more than 54,000,000 passengers, indicated as follows:

<u>PENNSYLVANIA STATION</u>	<u>1929</u>	<u>1930</u>
Pennsylvania R.R.	11,339,100	10,535,800
Long Island R.R.	52,835,400	54,203,200
Lehigh Valley R.R.	607,800	520,800
N.Y. N.H. & H. R.R.	<u>627,400</u>	<u>625,200</u>
TOTAL	65,409,700	65,885,000

Total 1930 Traffic shows a gain of 475,000 passengers over 1929 due to Long Island increase.

PENNSYLVANIA RAILROAD

	<u>MONTHLY</u>	<u>COMMUTATION</u>	<u>TICKETS</u>
<u>Newark to New York (10.1) Miles</u>			
To Pennsylvania Station			\$15.39
Via H & M - 33rd Street			7.47
Differential			\$ 7.92 - or 106%
<u>Elizabeth to New York (15.4) Miles</u>			
To Pennsylvania Station			\$16.50
Via H & M - 33rd Street			8.58
Differential			\$ 7.92 - or 92%
<u>New Brunswick to New York (32.6) Miles</u>			
To Pennsylvania Station			\$21.12
Via H & M - 33rd Street			13.20
Differential			\$ 7.92 - or 60%

NON-COMMUTER TICKETS

Differential between Newark and New York:
an extra fare of 15¢ each way is charged
passengers using Pennsylvania Station
instead of H & M to 33rd Street.

"The Pennsylvania Station handles almost twice as many trains from Long Island as it does from West of the Hudson River. This is due to the fact that commuters on the Pennsylvania Lines in New Jersey are discouraged from using the Pennsylvania Station by a much higher commutation fare than can be obtained by using Terminals of the Hudson & Manhattan Company. If it were not for this, the Pennsylvania Station would be entirely insufficient for the combined commuter and through traffic."

(R.S. Vol. IV - P. 74 - 1928)

TABLE SHOWING TRAFFIC INCREASE

GRAND CENTRAL TERMINAL--NEW YORK

<u>YEAR</u>	<u>NEW HAVEN R.R.</u>	<u>N.Y.C. R.R.</u>	<u>TOTAL</u>
1911	10,014,000	10,068,000	20,082,000
1912	10,082,000	10,712,000	20,794,000
1915	10,244,000	13,718,000	23,962,000
1920	16,460,000	20,477,000	36,937,000
1924	17,738,000	22,439,000	40,178,000
1929	17,736,000	32,061,000	49,797,000
1930	16,878,000	31,810,000	48,688,000

PENNSYLVANIA STATION--NEW YORK

<u>YEAR</u>	<u>PENNA. R.R.</u>	<u>LONG ISLAND R.R.</u>	<u>TOTAL</u>
1911	3,641,000	8,396,000	12,037,000
1912	4,012,000	10,114,000	14,127,000
1916	4,212,000	14,179,000	18,390,000
1920	11,717,000	25,137,000	36,854,000
1924	10,171,000	34,806,000	44,977,000
1929	11,339,000	52,835,000	64,174,000
1930	10,535,000	54,203,000	64,735,000

<u>Add</u>	<u>LEHIGH VALLEY</u>	<u>NEW HAVEN</u>	
1929	607,000	627,000	65,408,000
1930	520,000	625,000	65,885,000

ACCESS TO THE CENTRAL DISTRICT

From the New Jersey Terminals.

First: - By Ferry to 23rd St. from the Erie and Lackawanna terminals. Average time twenty (20) to twenty-five (25) min.

Second: - Average time twenty-seven (27) minutes. To Liberty Street, twelve (12) minutes.

Allowance must be made for additional time required from trains to Ferry, and from Ferry to surface transportation at 23rd Street. Elevated and subways are not available at 23rd Street Ferry.

Time required to Midtown depends upon mode of transportation and may vary with traffic conditions from fifteen (15) to twenty (20) minutes.

Hudson and Manhattan service is available from the Erie and Lackawanna terminals, and the time to 33rd Street is fourteen (14) minutes.

Erie Schedule, Page 30, allows ten minutes additional for connections at Jersey City. Total twenty-four (24) min.

By Ferry from Weehawken West Shore Station to 42nd Street, average time twelve (12) minutes. Transfer to surface transportation to the Central District.

Ferry from Weehawken to Cortlandt Street, average 30 minutes.

Baltimore and Ohio Railroad motor coaches provide service from stations in the Midtown District to the Jersey City Terminal, requiring from forty-five (45) to fifty-five (55) minutes for connection with the fast B. & O. express trains to the South and West.

NUMBER OF PASSENGERS DAILY

Railroad and Ferry

In 1930, taken on a daily basis, counting 300 full traffic days in the year, 645,333 passengers of all kinds used the railroads and ferries into New York City daily, of whom 512,779 were commuters. The difference between these two figures, 132,554 is the estimated number of the average daily visitors to the City. In 1929 the estimated number of daily passengers was 667,000 of whom 522,257 were commuters and 144,743 daily visitors.

NEW JERSEY RAILROADS - 1930

<u>Railroad</u>	<u>Commuter Zone and Family Trip</u>	<u>Other Traffic</u>	<u>Total Traffic</u>
Baltimore & Ohio		477,200	477,200
Central of New Jersey	13,111,899	3,591,157	16,703,056
D.L. & W.	18,120,647	3,662,080	21,782,727
Erie	28,480,660	2,248,688	30,729,348
N.Y.O. & W.		329,958	329,958
West Shore	<u>8,462,302</u>	<u>965,253</u>	<u>9,427,555</u>
	68,175,508	11,274,336	79,449,844

PENNA R.R.

Penna Station	363,643	10,172,221	10,535,864
Jersey City	2,466,130	968,591	3,434,721
Via Hudson-Manhattan	<u>8,661,855</u>	<u>15,231,433</u>	<u>23,893,288</u>
Total Penna R.R.	11,491,628	26,372,245	37,863,873 *

* Decrease from total of 42,744,319 in 1929.

HUDSON & MANHATTAN

Uptown Station (33rd St.)	31,651,843 - 30%
Hudson Term. - Cortlandt	<u>72,278,550 - 70%</u>

T o t a l 103,930,393

GROWTH AND TRANSPORTATION

Growth follows and is dependent upon transportation.

New York City has been a pioneer in constructing rapid transit lines through virgin and undeveloped territory, and has proved that population will follow such transportation lines promptly and intensively. (R.S. IV - 120 - 1925)

"It is obvious that there would have been a much greater increase of population, West of the Hudson River, if similar transit connections had been applied to this district."

(R.S. IV - 19- 1926)

"Even without such facilities the New Jersey Railroads carry the largest number of passengers into New York City."

(R.S. IV - 124)

The first elevated railroad in New York, running from the Battery, on Greenwich Street and 9th Avenue to 31st St., began operation in 1871.

The first subway was opened in 1904. As the area of Manhattan is limited (22 square miles) the surplus growth spread rapidly to the section north of the Harlem River, and to Long Island, everywhere following newly constructed rapid transit lines.

Large areas are available for development in New Jersey, within half the distance of large commuting centers in New York, both North and to the East in Long Island.

INCREASE IN POPULATION
OF THE
NEW YORK METROPOLITAN DISTRICT

	<u>1 9 2 9</u>	<u>1 9 3 0</u>	<u>PERCENT INCREASE</u>
City of New York	5,620,000	6,981,000	24.2%
<u>NEW JERSEY SECTOR:</u>			
Bergen County, New Jersey	210,700	365,400	
Essex " " "	652,000	834,000	
Hudson " " "	629,100	683,400	
Middlesex " " "	162,300	208,800	
Morristown " " "	104,900	147,900	
Morris " " "	82,900	110,300	
Passaic " " "	259,100	301,300	
Somerset " " "	47,900	65,400	
Union " " "	200,100	304,700	
Rockland " " "	45,500	59,500	
TOTAL NEW JERSEY SECTOR	2,394,500	3,081,100	28.6%
<u>WESTCHESTER SECTOR:</u>			
Westchester County, New York	344,500	516,700	50.0%
Fairfield Co. (Conn.) (Part)	100,000	120,000	
TOTAL WESTCHESTER SECTOR	444,500	636,700	43.2%
<u>LONG ISLAND SECTOR:</u>			
Nassau County, Long Island	126,000	302,400	139.8%
Suffolk " " " (Part)	14,000	25,000	45.0%
TOTAL LONG ISLAND SECTOR	140,000	327,000	133.8%
TOTAL METROPOLITAN DISTRICT	8,599,000	11,027,100	28.2%

INCREASE IN POPULATION
OF THE METROPOLITAN DISTRICT

The City of New York alone accounts for	6,958,000
a gain of 24% since 1920, although the Borough of	
Manhattan <u>decreased</u> about	400,000

At the present rate of growth, the New	
York Metropolitan District would have in 1940 a	
population of	13,500,000

And in 1950, a population approaching	17,000,000
---------------------------------------	------------

COMPARATIVE GROWTH

During the past ten years, the suburban towns and cities served by the New Jersey roads have failed to keep pace with the growth of similar communities in the Long Island and Westchester sections. This is largely attributable to the inability of these lines to render fast, convenient service to New York City.

N O T E: Population, 1930, State of New Jersey	4,041,000
" Metropolitan Dist. N.J. Sector	3,021,000
-----(75% of total).	

NUMBER OF NEW YORK PASSENGERS CARRIED BY NEW JERSEY RAILROADS - 1930.

Pennsylvania Railroad . . .	37,863,000	(32.3%)
Other New Jersey Railroads	79,449,000	(67.7%)

Two-thirds of total number of passengers were dependent on and carried by the Railroads without Terminals in New York City.

RATES OF INCREASE IN PASSENGER TRAFFIC

The total number of New York passengers, in round numbers, carried by the New Jersey Railroads, not having Passenger Terminals in New York for the years 1921 and 1929:

<u>Railroad</u>	<u>1 9 2 1</u>	<u>1 9 2 9</u>	<u>Approximate percentage of increase</u>
West Shore	7,200,000	9,000,000	25%
Cent. of N.J.	16,000,000	17,000,000	6%
D.L. & W.	20,000,000	22,000,000	10%
Erie	30,000,000	31,500,000	5%
N.Y.O. & W.	600,000	400,000 (LOSS)	32%
B. & O.	<u>550,000</u>	<u>475,000</u> (LOSS)	<u>16%</u>
TOTAL	74,350,000	80,375,000	8% Ave.

By the New York Railroads in the same periods:

N.H. Lines (Inc. N.Y. W. & B.)	22,500,000	27,800,000	23%
N.Y. Cent.	20,200,000	32,060,000	58%
Long Island	<u>49,600,000</u>	<u>85,270,000</u>	<u>73%</u>
TOTAL	92,300,000	145,130,000	57.2% "

Only the West Shore of the New Jersey group showed a substantial increase.

As shown in the above totals: The New Jersey Railroads not having New York Passenger Terminals carried in 1929 only 6,000,000 more passengers than was carried by the same railroads in 1921, or a gain of 8%.

The New York Railroads having Passenger Terminals in New York, carried 52,800,000 more passengers in 1929 than was carried by the same railroads in 1921, or a gain of 57.2%.

RATES OF INCREASE IN PASSENGER TRAFFIC

NON-COMMUTER

As indicated, the combined passenger totals of Central of New Jersey, Erie, and Delaware, Lackawanna and Western Railroads:

In 1911 amounted to	12,800,000
more than double the Pennsylvania Railroad total of	6,000,000

In 1930, the combined totals of the Central of New Jersey, Erie and D.L. & W. amounted to 9,500,000
a loss of 3,300,000 - or 26%.

In the same year, Pennsylvania Railroad traffic had increased to 11,140,000
or a gain of 5,140,000 - or 86%.

Approximately 8% using the New Jersey Terminal, and 92% using the Pennsylvania Station in New York City.

In the second table of: "PASSENGERS, NOT INCLUDING COMMUTERS," is again shown a substantial loss of passengers by the New Jersey Railroads not having New York Passenger Terminals. In sharp contrast is the large increase of Pennsylvania Railroad traffic during the same period.

That the increased volume of Pennsylvania Railroad Passenger traffic is largely due to its superior Terminal facilities in New York, is evidenced by the substantial and consistent growth maintained following completion of the Pennsylvania Station. An aggressive and efficient management in itself, without the present Terminals, could not account for the superior position of the Pennsylvania Railroad.

NUMBER OF PASSENGERS - NOT INCLUDING COMMUTERS

<u>Year</u>	<u>Cent. of N.J. R.R.</u>	<u>Erie R.R.</u>	<u>D.L. & W. R.R.</u>	<u>N.J. Term. Penna.R.R.</u>	<u>Penna. Sta.N.Y.</u>	<u>Penna. Total</u>
1911	3,000,000	5,000,000	4,800,000	2,500,000	3,500,000	6,000,000
1920	3,600,000	3,900,000	5,600,000	1,100,000	11,300,000	12,400,000
1924	3,400,000	3,500,000	5,900,000	1,040,000	9,820,000	10,860,000
1930	3,590,000	2,250,000	3,660,000	968,000	10,172,000	11,140,000

The year 1920 showed an increase over 1911 for Cent. of N.J. of 20%
 " " 1920 " a decrease from 1911 " Erie " 22%
 " " 1920 " an increase over 1911 " D.L. & W. " 25%
 " " 1920 " an increase over 1911 " Penna R.R. " 106%

The year 1930 showed an increase over 1911 for Cent. of N.J. of 20%
 " " 1930 " a decrease from 1911 " Erie R.R. " 55%
 " " 1930 " a decrease from 1911 " D.L. & W. " 23.7%
 " " 1930 " an increase over 1911 " Penna R.R. " 85.6%

The year 1930 showed an increase over 1911 at Penna Sta.N.Y. of 190%

FUTURE PASSENGER TRAFFIC
ESTIMATES FOR YEARLY AVERAGE
PROPOSED NEW YORK UNION TERMINAL

Future passenger traffic estimates for the purpose of determining Interest Costs per Passenger, Division of the Traffic Among the Several New Jersey Railroads and for Amortization are based on the following:

Population growth for the New Jersey area and entire Metropolitan District from 1920 to 1930 averaged 2.8% annually.

From 1921 to 1929 inc. the entire passenger traffic in and out of New York City increased from 223,182,000 to 273,459,000, or an average of 2.5% annually.

For the same period New York Railroads entering New York City Terminals increased their traffic on an average of 6.3% annually.

For the same period the New Jersey Railroads without New York City Terminals increased their passenger traffic from 76,735,732 to 81,678,613 or an average of 0.7% annually.

Continuing this rate of increase from 1929 to the probable completion of the New Terminal in 1938, the traffic under present facilities should equal 86,971,000 passengers for the New Jersey Railroads.

However, 80,000,000 passengers for 1938 is assumed as a conservative estimate, and future traffic and amortization tables are based on this amount. From the opening of the New Terminal the rate of traffic increase should be at least 2.5% annually.

FUTURE PASSENGER TRAFFIC (Cont.)

INTEREST COST PER PASSENGER

	<u>Number of Passengers Per Year Ave.</u>	<u>Interest Cost Per Passenger</u>
First 5-year period	84 080 000	12.25%
Second 5-year period (13.12% increase)	96 120 000	10.84
Third 5-year period (13.12% increase)	107 600 000	9.58
Fourth 5-year period (13.12% increase)	<u>118 928 000</u>	<u>8.67</u>
20-Year Average	101 432 000	10.16%

DIVISION OF PASSENGER TRAFFIC

FIRST FIVE YEAR PERIOD

	<u>Passengers</u>	<u>*Percentage</u>
Erie R.R.	32 919 000	39.152
D.L. & W. R.R.	23 359 000	27.782
Central R.R. of N.J. (Inc. B. & O. & P. & R.)	17 970 500	21.373
West Shore	9 334 500	11.102
N.Y.O. & W. R.R.	<u>497 000</u>	<u>0.591</u>
	84 080 000	100.000

*Based on average traffic for 13 years, 1921 to 1933 inc.

At the rate of increase of 2.5% annually from 1938, the 1965 volume of traffic should reach 150 000 000 passengers (62 500 daily per tunnel track), for which there will be ample tunnel capacity and storage tracks in the New Terminal for efficient operation. The Long Island Railroad in 1930 carried 55 000 000 passengers (45 000 daily per tunnel track) through their tubes.

AMORTIZATION TABLE

45% GRANT

4% INTEREST

Estimated Cost of Completed Project

\$257,700,000

Less 45% Grant

115,965,000
\$141,735,000

Interest at 4% per Annum

5,669,400

AMORTIZES IN 38 YEARS AT 6 1/2% PER PASSENGER.

Year	Passengers	Rate	Receipts	Surplus Over Int.	Balance due on Cost
					\$141,735,000
1	80,000,000	6 1/2%	\$5,200,000	\$ 469,400	142,204,400
2	82,000,000		5,330,000	358,176	142,562,576
3	84,080,000		5,465,200	237,303	142,799,879
4	86,160,000		5,600,400	111,595	142,911,474
5	88,320,000		5,740,800	23,341	142,888,133
6	90,480,000	6 1/2%	5,881,200	165,675	142,722,458
7	92,800,000		6,032,000	323,102	142,399,356
8	95,120,000		6,182,800	486,826	141,912,530
9	97,440,000		6,333,600	657,099	141,255,431
10	99,920,000		6,494,800	844,583	140,410,848
11	102,400,000	6 1/2%	6,656,000	1,039,566	139,371,282
12	104,960,000		6,822,400	1,247,549	138,123,733
13	107,600,000		6,994,000	1,469,051	136,654,682
14	110,320,000		7,170,800	1,704,613	134,950,069
15	113,040,000		7,347,600	1,949,597	133,000,472
16	115,840,000	6 1/2%	7,529,600	2,209,581	130,790,891
17	118,800,000		7,722,000	2,490,364	128,300,527
18	121,760,000		7,914,400	2,782,379	125,518,148
19	124,800,000		8,112,000	3,091,274	122,426,874
20	127,920,000		8,314,500	3,417,425	119,009,449
21	131,120,000	6 1/2%	8,522,800	3,762,422	115,247,027
22	134,400,000		8,736,000	4,126,119	111,120,908
23	137,760,000		8,954,400	4,509,564	106,611,344
24	141,200,000		9,178,000	4,913,546	101,697,798
25	144,720,000		9,406,800	5,338,888	96,358,910
26	148,320,000	6 1/2%	9,640,800	5,786,444	90,572,466
27	150,000,000		9,750,000	6,127,101	84,445,365
28	150,000,000		9,750,000	6,372,185	78,073,180
29	150,000,000		9,750,000	6,627,073	71,446,107
30	150,000,000		9,750,000	6,892,156	64,553,951
31	150,000,000	6 1/2%	9,750,000	7,167,842	57,386,109
32	150,000,000		9,750,000	7,454,556	49,931,553
33	150,000,000		9,750,000	7,752,738	42,178,815
34	150,000,000		9,750,000	8,062,847	34,115,968
35	150,000,000		9,750,000	8,385,361	25,730,607
36	150,000,000	6 1/2%	9,750,000	8,720,776	17,009,831
37	150,000,000		9,750,000	9,069,607	7,940,224
38	150,000,000		9,750,000	9,432,391	Pays Out

AMORTIZATION TABLE45% GRANT3% INTEREST

Estimated Cost of Completed Project	\$257,700,000
Less 45 Per Cent Grant	<u>115,965,000</u>
Amount of Loan	\$141,735,000
Interest at 3 Per Cent Per Annum	4,252,050

AMORTIZES IN 44 YEARS AT 5¢ PER PASSENGER

Year	Passengers	Rate	Receipts	Surplus Over Int.	Balance due on Cost
					\$141,735,000
1	80,000,000	5¢	\$4,000,000	\$ 252,050	141,987,050
2	82,000,000		4,100,000	159,611	142,146,661
3	84,080,000		4,204,000	60,400	142,207,061
4	86,160,000		4,308,000	41,788	142,165,273
5	88,320,000		4,416,000	151,042	142,014,231
6	90,480,000	5¢	4,524,000	263,573	141,750,658
7	92,800,000		4,640,000	387,480	141,363,178
8	95,120,000		4,756,000	515,105	140,848,073
9	97,440,000		4,872,000	646,558	140,201,515
10	99,920,000		4,996,000	789,955	139,411,560
11	102,400,000	5¢	5,120,000	937,653	138,473,907
12	104,960,000		5,248,000	1,093,783	137,380,124
13	107,600,000		5,380,000	1,258,596	136,121,528
14	110,320,000		5,516,000	1,432,354	134,689,174
15	113,040,000		5,652,000	1,611,325	133,077,849
16	115,840,000	5¢	5,792,000	1,799,665	131,278,184
17	118,800,000		5,940,000	2,001,654	129,276,530
18	121,760,000		6,088,000	2,209,704	127,066,826
19	124,800,000		6,240,000	2,427,995	124,638,831
20	127,920,000		6,396,000	2,656,835	121,981,996

AMORTIZATION TABLE

45% Grant 3% Interest

Continued

Year	Passengers	Rate	Receipts	Surplus Over Int.	Balance due on Cost
21	131,120,000	5¢	\$6,556,000	\$2,896,540	\$119,085,456
22	134,400,000		6,720,000	3,147,436	115,938,020
23	137,760,000		6,888,000	3,409,859	112,528,161
24	141,200,000		7,060,000	3,684,155	108,844,006
25	144,720,000		7,236,000	3,970,680	104,873,326
26	148,320,000	5¢	7,416,000	4,269,800	100,603,526
27	150,000,000		7,500,000	4,481,894	96,121,632
28	150,000,000		7,500,000	4,616,351	91,505,281
29	150,000,000		7,500,000	4,754,842	86,750,439
30	150,000,000		7,500,000	4,897,487	81,852,952
31	150,000,000	5¢	7,500,000	5,044,412	76,808,540
32	150,000,000		7,500,000	5,195,744	71,612,796
33	150,000,000		7,500,000	5,351,616	66,261,180
34	150,000,000		7,500,000	5,512,165	60,749,015
35	150,000,000		7,500,000	5,677,530	55,071,485
36	150,000,000	5¢	7,500,000	5,847,855	49,223,630
37	150,000,000		7,500,000	6,023,291	43,200,339
38	150,000,000		7,500,000	6,203,990	36,996,349
39	150,000,000		7,500,000	6,390,110	30,606,239
40	150,000,000		7,500,000	6,581,813	24,024,426
41	150,000,000	5¢	7,500,000	6,779,267	17,245,159
42	150,000,000		7,500,000	6,982,645	10,262,514
43	150,000,000		7,500,000	7,192,125	3,070,389
44	150,000,000		7,500,000	7,407,889	Pays Out

* * * * *

This great improvement, by reason of its character, magnitude and permanency,* should continue to show, after 1965, an increasing annual revenue comparable with the growth and transportation requirements of the New York Metropolitan District.

* The Grand Central Terminal and the Pennsylvania Station have already served the public for nearly 25 years, yet are considered new and modern improvements.

IN RE ESTIMATES FUTURE PASSENGER TRAFFIC INCREASE

The Estimates herewith submitted are well supported by the large increases shown in Passenger Traffic at the Grand Central and the Pennsylvania Stations.

Grand Central Terminal showed an increase from 1911 - (20,000,000
to approximately 50,000,000)
in 1930, or 150% increase.

Number of Passengers using Pennsylvania Station	1911 - 12,037,000
" " " " " "	1920 - 36,854,000
" " " " " "	1930 - 65,885,000

An increase in Nine Years of more than 200%.

An increase in Nineteen Years of 447%.

The Mid-City trend in passenger traffic is shown by the number of Long Island Railroad Passengers using the Pennsylvania Station.

An increase from 45% of the total in 1911 to 63% in 1930.

* * *

N O T E: LEHIGH VALLEY R.R. PASSENGERS (1930)

43% Commuter Traffic used Pennsylvania Station, New York

57% " " " Jersey City Terminals.

83% Non-Commuter Traffic used Pennsylvania Station, N.Y.

17% " " " " Jersey City Terminals.

NUMBER OF DAILY PASSENGER TRAINS

The Number of Passenger Trains in 24 hours in
1924 at the present Manhattan Terminals
. As reported by Reg. Surv. IV., Page 76 - 1928

<u>TERMINAL</u>	<u>TRAINS PER DAY</u>	<u>TOTAL PASSENGERS 1924</u>	<u>DAILY AV. (300 DAYS)</u>	<u>AVERAGE PER TRAIN</u>
Grand Central Pennsylvania (Long Island, P. R.R. & Others	492 404 <u>200</u>	40 178 000	133 000	265
	604	46 532 000	155 000	260

* The Number of Passenger Trains using the new
Terminals, taking an average of 260 passengers
per train, may be estimated at 1077 trains per
day for the first five-year period.

	<u>TRAINS PER DAY</u>	<u>ANNUAL TOTAL PASSENGERS</u>	<u>DAILY AVERAGE</u>	<u>AVERAGE PER TRAIN</u>
1st 5 years	** 1077	84 080 000	280 300	260
2nd 5 "	1220	95 120 000	317 100	"
3rd 5 "	1378	107 600 000	358 700	"
4th 5 "	1514	118 928 000	396 400	"

* Number of Passengers per trains may show a
substantial increase.

** Compare with two of the great London Railroad
Terminals, Waterloo and Liverpool Street
Stations, and the St. Lazare Terminal in Paris,
each with 1200 trains daily.

NEW TERMINAL PROJECT SELF-LIQUIDATING

The Project involves not only the construction of a Station Building (which is a minor item - less than 4% of the total cost), but the extension of the lines of the seven New Jersey Railroads direct into the heart of New York City.

The New Terminal is made self-liquidating from the rentals paid by the tenant railroads, which amount, in the aggregate, is sufficient to cover the fixed charges.

Over a 20-year period, based on the traffic estimates, the total interest charges would average about 10.16 cents per passenger.

NEW TERMINAL PROJECT SELF-SUPPORTING

Whether the project may be self-supporting, i.e., from direct income in the form of additional fares, depends upon the number of passengers carried and the extra charges imposed.

That an increase of passenger traffic to a sufficient volume to carry interest charges and to provide for an early amortization as evidenced by already established Terminals in Manhattan is clearly and conclusively shown in the preceding Tables.

TYPE AND CAPACITY OF TERMINALS

The type of Terminal planned is a Through Station served by four main tracks to the North and four main tracks to the South.

As now planned, the Terminal Passenger tracks will number thirty-six (36) with eighteen (18) loading platforms on one level 1800 to 2200 feet in length, an average length of 2000 feet. These varying platforms will easily accommodate two trains of eleven (11) to thirteen (13) cars each on each track.

The vast capacity of the Terminal is evident when it is estimated that about 900 cars would be accommodated if all the available platform space was utilized at one time.

The Terminal Station Building will be modern and spacious, of economical construction (estimated at less than 4% of the total cost of the Terminal Project), limited to Railroad use only, and will be adjacent to both elevated and subway transportation. It will cover the entire width of the thirty-six tracks and will be located near the center of the Terminal tracks.

The Downtown Station is planned to serve the Lower Manhattan area as strictly a Way-Station for commuting traffic. Besides the four through tracks, eight station tracks are provided to effect the rapid handling of traffic during peak hours.

THE LOCATION

The proposed Union Passenger Terminal facilities on Manhattan Island will enable the great trunk line railways now having terminals only in New Jersey, to carry their passengers directly into New York City.

Several locations are available; two are under consideration, where excavation costs would be low in comparison. The districts are poorly developed, backward, and land values are low. Either district would be largely redeemed by the completion of the proposed terminal, and proximity to the Central business area will be a great advantage.

TIME REQUIRED FOR CONSTRUCTION

There are no uncertainties, or unusual hazards in this proposal. Every type of construction contemplated has been done before, and costs can be ascertained with reasonable accuracy.

The Pennsylvania Railroad accomplished the same feat single-handed more than twenty years ago, thereby greatly enhancing its prestige, and securing an overwhelming advantage over competing lines terminating on the New Jersey side of the Hudson River.

The Grand Central Terminal was completed in about three years, with train service maintained throughout the construction period, and as building operations can be carried on more rapidly now than ever before, with consequent savings in carrying charges, it will be possible to complete the new Terminal, ready for occupancy, within two.. years.

FREIGHT

The movement of freight traffic through the tunnels in sufficient volume, will carry a substantial share of the annual charges.

"The estimated cost in 1914 of a proposed tunnel, including equipment and classification yard, was about \$47,000,000."

"An estimated tonnage available to use on all rail, route of 19,600,000 tons."

(From Reg. Surv. Vol. IV - Page 110)
(See Page 126, same Vol. for
Commodity Details).

The amount of tonnage available for all rail crossing of the Hudson River, and the feasibility or desirability of using one or more of the tunnels for freight traffic, at favorable intervals, are matters which are submitted for consideration.

S U M M A R Y

ESTIMATES OF COST

NEW YORK TERMINAL AND TUNNEL PROJECT

(Portal to Portal)

NORTH LAND AND RIVER TUNNEL SECTION	\$ 48 341 000
SOUTH RIVER TUNNEL SECTION	\$33 252 500
SOUTH LAND TUNNEL SECTION (N.J.)	<u>6 933 000</u> . . 40 185 500
NEW YORK LAND TUNNEL SECTION	58 769 000
WATERFRONT COSTS	3 500 000
ELECTRIFICATION	16 008 000
DOWNTOWN STATION	14 799 500
NEW YORK TERMINAL	39 060 500
STORAGE AND SERVICE YARDS	<u>37 027 000</u>
 TOTAL CONSTRUCTION COST	 \$257 690 500

APPROXIMATE ESTIMATE OF COST
OF
PROPOSED NEW YORK PASSENGER TERMINAL AND TUNNELS
(PLAN "D")

NORTH TUNNEL SECTION:

Length 14 000 feet = 2.65 miles. 4 tracks.

Land Tunnels, New Jersey (2 double-track)	10 000 lin.ft.	@ \$ 900.00	\$ 9 000 000
Land Tunnels, New York (2 double-track)	7 000 " "	1100.00	7 700 000
Hudson River Tunnels (4 single tubes)	22 000 " "	900.00	19 800 000
Track	56 000 " "	6.00	336 000
Third Rail	56 000 " "	2.50	140 000
Block signals	10.6 miles	1500.00	15 900
			<u>\$36 991 900</u>
Contingencies 10%			3 699 190
Engineering & Administration 10%			<u>\$40 691 090</u>
Interest during Construction 8%			4 069 110
			<u>\$44 760 200</u>
Total Cost of Tunnel Section			<u>\$48 341 020</u>

NEW YORK TERMINAL:

Excavation	3 296 000 cu. yd.	@ \$ 4.00	\$13 184 000
Concrete Retaining W.	108 000 "	20.00	2 160 000
Track	96 800 lin.ft.	6.00	580 000
Third Rail	96 800 " "	2.50	242 000
Switches-turnouts-crossings			100 000
Interlocking and signals	300 levers	2000.00	600 000
Bridges over Tracks	698 000 sq. ft.	8.00	5 584 000
Driveways at Station	100 000 " "	8.00	800 000
Station Platforms	547 000 " "	0.40	218 000
Canopy over Platforms	350 000 " "	1.00	350 000
			<u>7 200 000</u>

TERMINAL BUILDING ("36 tracks)

			<u>\$31 018 000</u>
Contingencies 10%			3 101 800
Engineering & Administration 8%			<u>\$34 119 800</u>
Interest during Construction 6%			2 729 580
			<u>\$36 849 380</u>
Total Cost of Terminal Section			<u>\$39 060 340</u>

NEW YORK LAND TUNNELS TO TERMINAL STATION:

Length 20 500 feet= 3.88 miles. 4 tracks.

Tunnels	41 000 lin.ft.	@ \$1100.00	\$45 100 000
(2 double-track)	82 000 "	"	492 000
Track	82 000 "	"	205 000
Third Rail	82 000 "	"	23 250
Block signals	15.5 miles	1500.00	
			\$45 820 250
Contingencies 10%			4 582 020
Engineering & Administration 10%			50 402 270
Interest during Construction 6%			5 040 230
			\$55 442 500
Total Cost of Tunnel Section			3 326 550
			\$58 769 050

DOWNTOWN STATION:

Tunnels	6 400 lin.ft.	@ \$1600.00	\$10 240 000
Tracks	13 970 "	"	83 820
Third Rail	13 970 "	"	34 920
Switches	20	900.00	18 000
Slip switches	4	3000.00	12 000
Station Platforms	74 550 sq. ft.	0.40	29 820
Interlocking	60 levers	2000.00	120 000
Station Building			1 000 000
			\$11 538 560
Contingencies 10%			1 153 860
Engineering & Administration 10%			12 692 420
Interest during Construction 6%			1 269 240
			\$13 961 660
Total Cost of Downtown Station			837 700
			\$14 799 360

SOUTH RIVER TUNNEL SECTION:

Length 7 000 feet = 1.33 miles. 4 tracks.

Tunnels (4 single)	28 000 lin.ft.	@ \$ 900.00	\$25 200 000
Track	28 000 " "	6.00	168 000
Third Rail	28 000 " "	2.50	70 000
Block signals	5.1 miles	1500.00	7 650
			<u>\$25 445 650</u>
Contingencies 10%			2 544 560
Engineering & Administration 10%			<u>\$27 990 210</u>
Interest during Construction 8%			2 799 020
			<u>\$30 789 230</u>
Total Cost of River Tunnel Section			<u>\$33 252 370</u>

SOUTH LAND TUNNEL SECTION: RIVER SECTION TO PORTAL

Length 3 000 feet = 0.57 miles. 4 tracks.

Tunnels (2 double-track)	6 000 lin.ft.	@ \$ 900.00	\$ 5 400 000
Track	12 000 " "	6.00	72 000
Third Rail	12 000 " "	2.50	30 000
Block signals	2.3 miles	1500.00	3 450
			<u>\$ 5 505 450</u>
Contingencies 10%			550 540
Engineering & Administration 8%			<u>\$ 6 055 990</u>
Interest during Construction 6%			484 480
			<u>\$ 6 540 470</u>
Total Cost of Land Tunnel Section			<u>\$ 6 932 900</u>

WATERFRONT COSTS:

New York	\$2 500 000		
New Jersey	<u>1 000 000</u>	Total	\$ 3 500 000

APPROXIMATE ESTIMATE OF COST
PROPOSED SERVICE AND STORAGE YARD
NEW YORK PASSENGER TERMINAL

SECTION A: 6 tracks - Capacity 118 cars.

Excavation	500 000	cu.yd. @	\$ 4.00	\$2 000 000
Concrete Retaining Walls	66 000	" "	20.00	1 320 000
Track	14 000	lin.ft.	6.00	84 000
Third Rail	14 000	" "	2.50	35 000
Switches	12		900.00	10 800
Signals & Interlocking	24	levers	2000.00	48 000
Bridges over tracks	113 600	sq.ft.	8.00	908 800
				<hr/>
Contingencies 10%				\$4 406 600
				440 660
Engineering & Administration 8%				4 847 260
				387 780
Interest during Construction 6%				5 235 040
				314 100
Total Cost				<hr/>
				\$5 549 140

SECTION B: 30 tracks - Capacity 880 cars.

Excavation	2 419 300	cu.yd. @	\$ 4.00	\$9 677 200
Concrete Retaining wall	79 000	" "	20.00	1 580 000
Tunnel approach	1 100	lin.ft.	1100.00	1 210 000
Track	90 000	" "	6.00	540 000
Third Rail	90 000	" "	2.50	225 000
Switches	60		900.00	54 000
Signals & Interlocking	120	levers	2000.00	240 000
Bridges over tracks	498 800	sq.ft.	8.00	3 990 400
				<hr/>
				\$17 516 600
Contingencies 10%				1 751 660
				19 268 260
Engineering & Administration 8%				1 541 460
				20 809 720
Interest during Construction 6%				1 248 580
				<hr/>
Total Cost				\$22 058 300

APPROXIMATE ESTIMATE OF COST
PROPOSED SERVICE AND STORAGE YARD
 (Cont.)

SECTION C: 5 tracks - Capacity 122 cars.

Excavation	444 400 cu.yd. @	\$ 4.00	\$1 777 600
Concrete retaining walls	56 000 " "	20.00	1 120 000
Track	12 900 lin.ft.	6.00	77 400
Third rail	12 900 " "	2.50	32 000
Switches	8	900.00	7 200
Signals & Interlocking	16 levers	2000.00	32 000
Bridges over tracks	103 600 sq.ft.	8.00	828 800
Tunnel	500 lin.ft.	600.00	300 000
			<hr/> \$4 175 250
Contingencies 10%			417 520
Engineering & Administration 8%			<hr/> 4 592 770
Interest during Construction 6%			367 420
			<hr/> 4 960 190
Total Cost			<hr/> \$5 257 800

SECTION D: 8 tracks - Capacity 75 cars.

Excavation	285 200 cu.yd. @	\$ 4.00	\$1 140 800
Concrete retaining walls	22 000 " "	20.00	440 000
Track	8 400 lin.ft.	6.00	50 400
Third Rail	8 400 " "	2.50	21 000
Switches	10	900.00	9 000
Signals & Interlocking	20 levers	2000.00	40 000
Bridges over tracks	20 000 sq.ft.	8.00	160 000
			<hr/> \$1 861 200
Contingencies 10%			186 120
Engineering & Administration 8%			<hr/> 2 047 320
Interest during Construction 6%			163 790
			<hr/> 2 211 110
Total Cost			<hr/> \$2 343 780

SECTION E: 8 tracks - Capacity 30 cars.

Excavation	217 500 cu.yd. @	\$4.00	\$870 000
Concrete retaining walls	19 000 " "	20.00	380 000
Track	6 400 lin.ft.	6.00	38 400
Third rail	6 400 " "	2.50	16 000
Switches	8	900.00	7 200
Signals & Interlocking	16 levers	2000.00	32 000
Bridges over tracks	12 500 sq.ft.	8.00	100 000
			<hr/> \$1 443 600
Contingencies 10%			144 360
Engineering & Administration 8%			<hr/> 1 587 960
Interest during Construction 6%			127 040
			<hr/> 1 715 000
Total Cost			<hr/> 102 900
			<hr/> \$1 817 900

ELECTRIFICATION AND OPERATING EQUIPMENT

Electric Locomotives	75 @	\$150,000.	\$11,250,000
Transmission Lines	15 miles	30,000.	450,000
Tracks and 3rd Rail - Amount required in addition to that used in esti- mate for Terminal and connections			
10,000 lin. ft.	"	8.50	85,000
Sub-Stations	5 "	100,000.	500,000
Locomotive Inspection Sheds 4 -			
8,000 sq. ft. - 32,000 sq. ft.	"	7.50	240,000
Repair Shops for Electric Locomotives			
70,000 sq. ft.		7.50	525,000
Equipment for Shops and Inspection Sheds			150,000
			<hr/>
			\$13,200,000
Contingencies - 10%			1,320,000
			<hr/>
Engineering & Administration - 5%			660,000
			<hr/>
Interest during construction - 5%			660,000
			<hr/>
Real Estate - 3 Acres @ \$2000.			6,000
			<hr/>
TOTAL COST OF EQUIPMENT			\$16,014,000

Note: The use of the Pantograph System for electrical operation may be preferred to the Third Rail. Estimates of Cost are being prepared and will be submitted.

DIVISION OF INTEREST CHARGES

TOTAL CONSTRUCTION COST	\$257 700 000
INTEREST AT 4% PER ANNUM	10 308 000

	<u>Item</u>	<u>Interest</u>
TERMINAL	\$53 860 000	\$2 154 400
TUNNEL	150 795 500	6 031 820
STORAGE YARD	37 036 500	1 481 460
ELECTRIFICATION	16 008 000	640 320

<u>R.R.</u>	<u>TERMINAL</u>	<u>TUNNELS</u>	<u>STORAGE YARDS</u>	<u>ELECTRI- FICATION</u>	<u>TOTALS</u>	<u>PERCENT- AGE</u>
ERIE	\$843 493	\$2 361 585	\$580 023	\$250 699	\$4 035 800	39.152
D.L.&W.	598 541	1 675 780	411 584	177 895	2 863 800	27.782
C. N.J.	460 454	1 289 163	316 628	136 855	2 203 100	21.373
W.SHORE	239 182	669 656	164 473	71 089	1 144 400	11.102
N.Y.O.&W.	<u>12 730</u>	<u>35 636</u>	<u>8 752</u>	<u>3 782</u>	<u>60 900</u>	<u>0.591</u>
	\$2 154 400	\$6 031 820	\$1 481 460	\$640 320	\$10 308 000	100.000

REAL ESTATE COSTS

ESTIMATED

NEW YORK:

The surface area of the property to be acquired in Fee on Manhattan Island to carry out the MAIN TERMINAL project is estimated at a total of 1,631,659 sq. ft., or about 37.5 acres, which was assessed in 1934 as follows:

LAND -	\$17 094 700	or approx.	\$10.48 per sq. ft.	
BLDGS	7 581 300	or approx.	4.64 per sq. ft.	
TOTAL	\$24 676 000	or approx.	\$15.12 per sq. ft.	\$24 676 000
ADD:		25% for Contingencies		5 169 000
				<u>\$30 845 000</u>

FOR STORAGE & SERVICE YARDS adjacent to MAIN TERMINAL the area required is estimated at 2,157,503 sq. ft., or about 49.5 acres, which was assessed in 1934 as follows:

LAND -	\$17 545 500	or approx.	\$ 8.13 per sq. ft.	
BLDGS	12 269 850	or approx.	5.69 per sq. ft.	
TOTAL	\$29 815 350	or approx.	\$13.82 per sq. ft.	
ADD:	5 963 070	- 20% for Contingencies		\$35 778 420

FOR DOWNTOWN STATION SITE the area required is estimated at 252,993 sq. ft., or about 5.8 acres, which was assessed in 1934 as follows:

LAND -	\$ 4 795 500	or approx.	\$19.00 per sq. ft.	
BLDGS	1 788 500	or approx.	7.00 per sq. ft.	
TOTAL	\$ 6 584 000	or approx.	\$26.00 per sq. ft.	
ADD:	1 316 800	- 20% for Contingencies		7 900 800
				<u>\$74 524 220</u>
ADD: - Interest for 2½ years at 4% per annum				7 452 422
				<u>\$81 976 642</u>

NEW YORK LAND TUNNELS: LAND EASEMENTS for NORTH TUNNELS and underground approaches to Main Terminal (exclusive of street areas) is estimated as follows:

APPROACHES -	226 000 sq. ft. @ \$5.00	\$1 130 000
TUNNELS	150 000 sq. ft. @ \$4.00	600 000
		<u>\$1 730 000</u>

SOUTH TUNNELS: IN FEE	1 984 000
	<u>\$3 714 000</u>
ADD: - Interest for 2½ years at 4%	371 400
	<u>4 085 400</u>

\$86 062 042

REAL ESTATE COSTS
ESTIMATED
(Cont.)

TOTAL NEW YORK REAL ESTATE \$86 062 042

NEW JERSEY:

The surface area of the property to be acquired for approaches and tunnels in New Jersey is estimated as follows:

NORTH TUNNEL - Easements-400 000 sq.ft. @ 50¢	\$200 000	
SOUTH TUNNEL - Fee & " 250 000 sq.ft. @ \$2.00	500 000	
	<u>\$700 000</u>	
ADD - Interest for 2½ years at 4% per annum	70 000	<u>770 000</u>
TOTAL ESTIMATED COST OF REAL ESTATE		\$86 832 042

AERIAL RIGHTS:

Area in Main Terminal	1 631 659 sq.ft.
Area in Downtown Station	252 993
Area in Storage & Service Yards	<u>2 157 503</u>
Total	4 042 155 sq.ft.

TO BE USED FOR -

Main Terminal Bldg.	160 667 sq.ft.	
Downtown Station Bldg.	40 000	
Plaza	160 667	
Parkway, etc	<u>210 821</u>	<u>572 155</u>

AVAILABLE FOR AIR RIGHTS 3 470 000 sq.ft.
or approximately 85% of Total Area

Note:

There may be added to the above area about
1 500 000 sq. ft. under the enclosed streets.

Note:

A check of the buildings on the Main Terminal and Storage & Service Yards areas show the average street line height is 4.2 stories; and probably more than 75% of them are over 50 years old.

DIVISION OF COST BETWEEN RAILROAD TERMINAL
CORPORATION AND TERMINAL LAND IMPROVEMENT
CORPORATION

The development of the air rights over the Terminal area, excepting the passenger station, would be assumed by a separate Terminal Land Improvement Company, which would relieve the railroads of the major portion of the real estate charges.

In this development a considerable proportion of the work must be performed by the Railroad Terminal Company that would otherwise have to be done in the course of the erection of buildings for other than railroad purposes. The excavation, though unavoidably a part of the Terminal construction, will inure to the direct benefit of the air rights to be concurrently developed.

VALUATION OF AERIAL RIGHTS

In the valuation of Aerial rights, consideration may be given to the following advantages:

- FIRST: Excavation and sub-foundation work will be completed ready for aerial building development.
- SECOND: The plottage value accruing to the large areas under one ownership and control.
- THIRD: The commercial value and advantages resulting from a daily flow of passengers in large volume into the new Terminal (estimated at 84,080,000 annually during the first five years - 280,000 per day).*

For the purpose of preliminary financial set-up, the average value of aerial rights has been tentatively set at \$.00 per square foot, including excavation and sub-foundation costs.

*Includes both Main Terminal and Downtown Station.

REAL ESTATE

ASSESSED VALUATIONS: The assessed valuations in New York City are fixed at a price which, in the judgment of the Deputy Tax Commissioner, the property would sell for under ordinary conditions. The appraisal is made under oath.

ACQUISITION OF PROPERTIES: The assemblage of the real estate necessary for the project is a matter of great importance and if not handled properly, a considerable addition to the cost will result.

Any publicity given the plan, before control of a substantial portion of the land is acquired, or employment of indiscreet persons in its purchase, will eliminate the possibility of economical buying.

Under present conditions, a large number of the properties required may be obtained at a price approximating the assessed values. The acquisition at an advantageous price of a substantial number of the properties required will be of material aid in establishing the market value in cases where condemnation proceedings are necessary.

ORGANIZATION AND FUNCTION OF THE TERMINAL COMPANY

The Terminal Company to be organized to construct and operate a Union Passenger Station and Terminal facilities in New York City, in the interest of and for the use of the following Railroads:

Baltimore & Ohio	Erie
Central of New Jersey	Delaware, Lackawanna & Western
Philadelphia & Reading	New York, Ontario & Western
New York Central	West Shore Railroad

ORGANIZATION AND FUNCTION OF THE TERMINAL

IMPROVEMENT COMPANY

The Terminal Improvement Company to be organized to take over and develop, under contract with the Terminal Company, all the air rights on the land to be acquired by the Terminal Company, except the Station and Plaza sites, in consideration of the assumption by the Improvement Company of certain portions of the cost of land and excavation, together with proportionate carrying charges from and after the time air rights are available for development; the Improvement Company to pay all interest and sinking fund charges on the proportion of the Terminal Company's investment which it assumes, together with a proportionate share of the land taxes.

The Improvement Company to acquire title to the land when its share of the cost is amortized, subject to the usual necessary and proper rights and easements of the Terminal Company in the underground and sub-areas.

(2)

ms-Ten

AGREEMENT FOR USE OF TERMINAL

An agreement with the Railroad Terminal Company may provide that the participating Railroads shall pay, each in proportion to its use, such sum as rental which is sufficient in the aggregate to cover interest and amortization charges, together with operation, maintenance, administration costs and taxes.

GUARANTY OF PRINCIPAL AND INTEREST

For the purpose of an agreement for the guaranty of the principal and interest of the Terminal bonded indebtedness, the participating Railroads may be divided into four groups, which would severally assume all charges in proportion to the share of each in the total volume of traffic.

First Group: - Consisting of Erie Lines

Second Group: - The Delaware, Lackawanna and Western Lines

Third Group: - The Central of New Jersey Lines, the Baltimore & Ohio, and the Philadelphia & Reading

Fourth Group: - The N.Y. Central and the West Shore

AN ALTERNATIVE PLAN: May include an agreement for a fixed charge per passenger,* sufficient to cover interest and amortization to be paid the Terminal Company by the tenant railroads - together with operation, maintenance, administration costs, and taxes.

* See Page 26.

RAILWAY TERMINAL BONDS

"These are issued by Railway Terminal Companies and usually have a double security behind them.

They are a lien on the Terminal properties themselves, such as stations, tracks and yards, and besides this are often guaranteed by the several railroads using the Terminal.

The stock of the Terminal Company as a rule is jointly owned by these railroads.

For these reasons, such bonds are either in the class with underlying mortgages or else in a still higher class.

No corporation bond is superior in safety, security or stability."

* * *

Page XXIV. - Moody's Manual of Investments-1930-1931.

R E S U M E'

IN RE NEW YORK TERMINAL

1. The proposed Terminal can accommodate all the railroads not now having direct access to Manhattan Island.
2. There are no uncertainties or unusual hazards in this proposal. Every type of construction contemplated has been done before and costs can be ascertained with reasonable accuracy. (P. 32).
3. A pioneer line (The Pennsylvania) accomplished the same feat single-handed more than twenty years ago, thereby greatly enhancing its prestige, and securing an overwhelming advantage over competing lines terminating on the New Jersey side of the Hudson River. (P. 32).
4. That the increased volume of Pennsylvania Railroad traffic is largely due to its superior facilities in New York is evidenced by the substantial and consistent growth maintained following the completion of the Pennsylvania Station. (P. 22).
5. An aggressive and efficient management in itself, without the present terminals, could not account for the superior position of the Pennsylvania Railroad. (P. 22).

RESUME' (Cont'd)

6. The Grand Central Terminal was completed in about three years, with train service maintained throughout the construction period, and as building operations can be carried on more rapidly now than ever before, with consequent savings in carrying charges, it will be possible to complete the Terminal, ready for use and occupancy, within two years. (P. 32).
7. Under the proposed plan, the Terminal Company may relieve the railroads of the major portion of the Real Estate charges by development of the aerial rights. (P. 42-43).
8. This would limit real estate investments by the railroads to transportation purposes only and will provide adequate and well located Terminal facilities at the lowest possible cost. (P. 42-43).
9. This improvement includes the redemption of a substantial area in a blighted section.
10. Approximately 75% to 80% of the total cost will be expended for labor and material. (P. 34).
11. The project as set up is self-liquidating. The character and permanency justifies the lowest possible rate of interest.
12. The new Terminal will be a great public convenience. Passengers using the Terminal would save from one-half to one hour or more daily. (P. 16). More than 40% of

RESUME' (Cont'd)

the total of the Trunk Line Railway passengers in the United States is carried in and out of New York City. A large share of this total is carried by the Railroads which would use the New Terminal.

13. Trunk Line Railway Passenger Traffic from 1920 to 1929 in the United States, decreased 38%. In the same period in New York City, increased 22%. (P. 4).

14. In 1930, two-thirds (67.7%) of the total number of passengers using the New Jersey Railroads in and out of New York City were dependent on and carried by the railroads without Terminals in Manhattan. (P. 20).

15. New Jersey Railroads without New York Passenger terminals carried only 6,000,000 more passengers in 1929 than in 1921, or a gain of 8%. (P. 21).

16. Railroads with passenger terminals in New York in the same period carried 52,800,000 more passengers, or a gain of 57.2%. (P. 21).

In non-commuter traffic, combined totals of Cent. of N.J., Erie and D.L. & W. in 1911, amounted to - 12,800,000 more than double the Penna R.R. total of 6,000,000

In 1930, the combined totals of the Cent. of N.J. and D. L. & W., amounted to 9,500,000
a loss of 3,300,000 - or 26%.

In the same year, Pennsylvania R.R. traffic had increased to 11,140,000
or a gain of 5,140,000 - or 86%.

RETENTION OF PRESENT TERMINAL FACILITIES

Retention of the present Terminal facilities in Jersey City and Hoboken, with the continued use of the present Ferries and Hudson and Manhattan service for traffic to and from the lower district in Manhattan, is not essential.

- 11 300 000 17 500
- 12 100 000 5 800
- 13 100 000 000 1000 000 **
- 14 Relating to the (Freight) (Hoboken)
- 15 100 000 5 11 500
- *** 15.
- * Included \$100 000 for station building, Jersey City.
- ** Interest Charge per passenger .542 (30 year period).
Including land cost estimated at \$2 000 000, the total
Interest Charge per passenger .984 (30 year period).
- *** No Estimates. See "foreword" (New Jersey Connections).

S U M M A R Y

NEW JERSEY CONNECTIONS AND LOOP TRACKS

Estimates - Construction Costs

<u>SECTION</u>	<u>COST</u>	<u>INTEREST 4%</u>
* 12	\$3 525 000	\$141 000
14	8 566 000	342 600
15	8 320 000	332 800
11	348 000	13 900
9	<u>224 000</u>	<u>9 000</u>
	\$20 983 000	\$839 300 **
16	Existing Tracks (Trackage Rights)	
10	\$ 283 000	\$ 11 300

*** 13

* Includes \$300 000 for Station Building, Jersey City.

** Interest Charge per passenger .84¢ (20 year period).

Including land cost estimated at \$2 000 000, the total

Interest Charge per passenger .92¢ (20 year period).

*** No Estimates. See "Foreword" (New Jersey Connections).

A P P E N D I X

The great City of New York differs largely from other communities in its transportation problems.

Manhattan Island - 12 miles in length, 2 miles in width, - 22 square miles in all, is a comparatively small area in which is concentrated the greatest activities, commercial and financial, in the world's history.

This concentration is cumulative and has already seriously affected the movement of surface traffic, both vehicular and pedestrian.

The comparative freedom of movement of automobile and bus traffic in other cities of less density does not exist in New York.

The only transportation systems able to maintain fast schedules are either elevated or underground.

For that reason Rail Transportation is more vital to New York. At several locations in New York there are already four levels of Rail Traffic. In one location there are five levels.

For purely physical reasons, New York must continue to depend, to an ever increasing extent upon rail transportation.